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**Cronan O'Connell**

Vice President-Federal Regulatory

October 11, 2002

EX PARTE

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street SW, TW-A325  
Washington, DC 20554

RE: CC Docket Nos. 98-147, 01-338 and 96-98, In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capability; Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers; Implementation of the Local Competition Provisions of the Telecommunications Act of 1996;

Dear Ms. Dortch:

On Thursday, October 10, 2002, Cronan O'Connell, Mary Retka and Craig Brown of Qwest International Corporation, Inc., met with the following Federal Communications Commission's staff: Brent Olson, Thomas Navin, Cathy Carpino, Ian Dillner, Daniel Shiman, Robert Tanner and Elizabeth Yockus of the Wireline Competition Bureau's Competitive Policy Division, and Jeffrey Goldthorp of the Office of Engineering and Technology/Network Technology Division. The purpose of the discussion as reflected on the attached presentation concerned Advanced Services, specifically why advanced services should not required further unbundling. We also provided our comments on AT&T's Electronic Loop proposal, and why it should not be required.

In accordance with FCC rule 1.49(f), this *Ex Parte* letter and attachment are being filed electronically *via* the Electronic Comment Filing System for inclusion in the public record of the above-referenced docket.

Sincerely,  
/s/ Cronan O'Connell

attachment

cc: Brent Olson  
Thomas Navin  
Cathy Carpino  
Ian Dillner  
Daniel Shiman  
Robert Tanner  
Elizabeth Yockus  
Jeffrey Goldthorp



*Spirit of Service*

## **Advanced Services**

October 10, 2002

# ***The FCC Should Not Require Further Unbundling of Advanced Services***

## **❑ CLECs are not impaired without Access to Advanced Services facilities**

### **— The FCC acknowledged this fact in the UNE Remand**

“[m]arketplace developments . . . suggest that requesting carriers have been able to secure the necessary inputs to provide advanced services to end users in accordance with their business plans. This evidence indicates that carriers are deploying advanced services to the business market initially as well as the residential and small business markets.”

*UNE Remand Order , para. 307*

### **— Many CLECs have installed their own packet switches**

“CLECs have deployed packet switches in more than 200 different cities. In the top 100 MSAs, the average number of packet switches per MSA has grown by an average of nearly 150 percent since the last UNE review.”

*UNE Fact Report 2002, pg. II-23*

## ***The FCC Should Not Require Further Unbundling of Advanced Services (cont'd)***

### **❑ *ILECs have no scale advantages in the market for Advanced Services***

- Cable Modem has 64% of Broadband market.
- DSL in the aggregate has 34% of the market.
- In light of the FCC's recent finding that Cable Modem service is not a telecommunications service, the Section 251 unbundling obligation handicaps providers of DSL service.

## ***The FCC Should Not Require Further Unbundling of Advanced Services (cont'd)***

- ***So far, efforts to unbundle Advanced Services facilities have failed***
  - **Line Sharing** – Qwest invested \$12.3M for network and OSS changes to comply with FCC Order; to date less than .05% of Qwest's Network Access Lines are shared.
  - **Remote collocation** – Qwest equipped 1,481 remote terminals for shared remote collocation; to date 2 remote terminals are in use by a CLEC.
- ***Public Policy Concerns***
  - **Continued unbundling will deter Facilities-based Competition and delay the economic benefits of nationwide Broadband Deployment.**
  - **CLECs have not reason to invest in facilities to provide Advanced Services if they know these facilities will be available at Telric rates.**

## ***The FCC Should Not Require Further Unbundling of Advanced Services (cont'd)***

- ❑ The marketplace requires certainty for Advanced Services deployment that will bring economic benefits to the country.**
- ❑ CLECs have put forth proposals (see Attachment).**
- ❑ These issues actively being addressed in State proceedings.**
- ❑ The FCC needs to provide clarity on Advanced Services unbundling.**

## ***Current Requirement: Unbundled Packet Switching***

- ❑ The FCC has ruled that Unbundled Packet Switching (UPS) is the only ATM packet switching UNE that passes the Act's necessary and impair test where:
  - 1 Qwest has deployed digital loop carrier systems, including but not limited to, integrated digital loop carrier (IDLC) or universal digital loop carrier systems or has deployed any other system in which fiber optic facilities replace copper facilities in the distribution section, or
  - 2 There are no spare copper loops available capable of supporting the xDSL services the requesting carrier seeks to offer, or
  - 3 Qwest has placed a DSLAM for its own use in a remote Qwest premises, but has not permitted CLEC to collocate its own DSLAM at the same remote Qwest premises, or
  - 4 Qwest has deployed packet switching capability for its own use.

## ***DSLAM Functionality (Background)***

- ❑ A DSLAM uses packet technology to transport data between subscriber Personal Computers and providers or corporate Local Area Network gateways.
- ❑ The routing and addressing for a customer virtual circuit is done through the entire network using these components:
  - ISP router or server
  - Public network loop connection, and
  - End user's customer premise equipment.
- ❑ The control card is the focal point for the operation, maintenance and provisioning of xDSL services.



# *Three Key Components of Remotely Deployed DSL*

## Line Card

- Provides the DSL high frequency interface with the customer loop
- Contains the hardware and software for xDSL, i.e. modem function

## Control Card

- Functionally controls and manages the DSLAM
- Supports addressing and routing with the DSLAM

## Trunk Card (a/k/a Transport Card)

- Provides the interface with the packet network

All of these cards are housed in shelves that share a power supply and a common network management system.

## *Remote DSLAM Limitations*

- ❑ Finite number of line ports.
- ❑ Trunk side of the DSLAM can only support a finite number of ADSL customers, based on careful traffic engineering of the trunk card and the connectivity to the ATM.
- ❑ Cabinet size and environment.
- ❑ Bandwidth available between the RT and the packet network.
- ❑ Speed offered to the end user depends on the quality and length of the copper loop.

## *Today's DSLAM Technical Limitations*

- ❑ There are no universally adopted standards that support interchangeable DSLAM components.
- ❑ Card equipment is vendor-specific and highly proprietary.
- ❑ Multiple carrier access is currently only available via virtual channels.

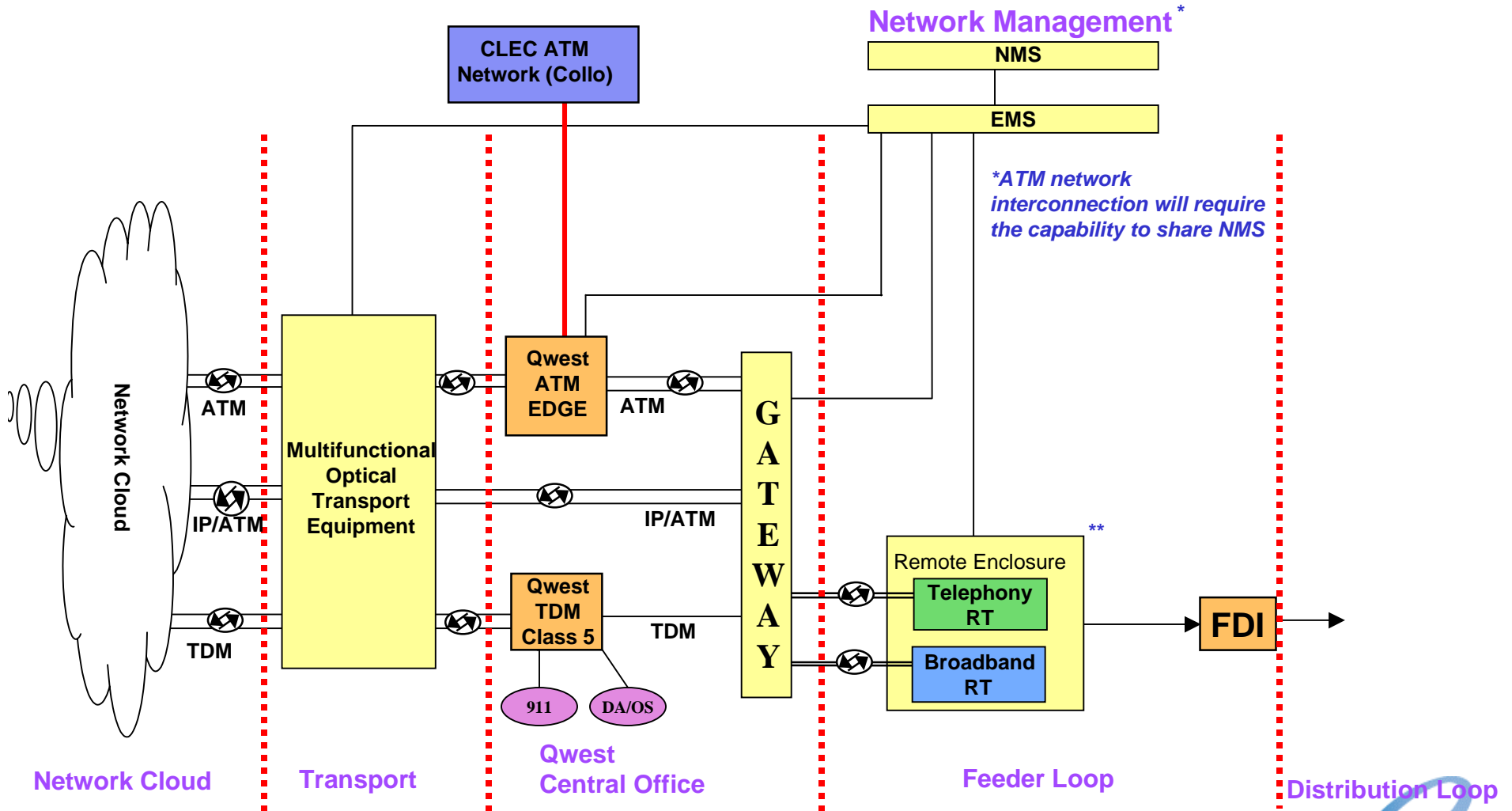
## *Today's DSLAM Technical Limitations (continued)*

- ❑ Currently there is no “universal card” to provide a combination of loop concentration and high-speed access.
- ❑ Card-at-a-Time collocation is not viable due to the need to share the trunk and control card functionality.
- ❑ Plug-and-Play is a CPE concept. It is inappropriate in the context of shared network elements.

## *Today's DSLAM Technical Limitations (continued)*

- ❑ The control cards are static and cannot be partitioned.
- ❑ While most DSLAMs can support various qualities of services, e.g., unspecified bit rate (UBR) and variable bit rate (VBR), Qwest's current packet network will not support these classes of service without upgrades to both software and hardware.
- ❑ The manufacturers of Qwest's DSLAMs have their own network management systems which cannot be partitioned to permit multiple carrier access.
- ❑ Line cards in a DSL system have multiple ports. If a card is not fully used, there is stranded efficiency.

# NGDLC as a Future Advanced Services Architecture



**\*\*NGDLC deployment would require physical separation of shelf and fiber transport for appropriate affiliate separation.**

**NOTE: Gateway is a functional description only for equipment that includes multi-protocol conversion**

## ***Advanced Services Unbundling Policy***

- ❑ **The FCC must clarify that the Unbundling of Advanced Services is not required.**
  - Frees parties to make market-based decisions on the deployment of Advanced Services technologies with certainty that they will not have to be unbundled.
  - The marketplace will drive deployment of facilities to bring the benefits of Advanced Services to all Americans.



*Spirit of Service*

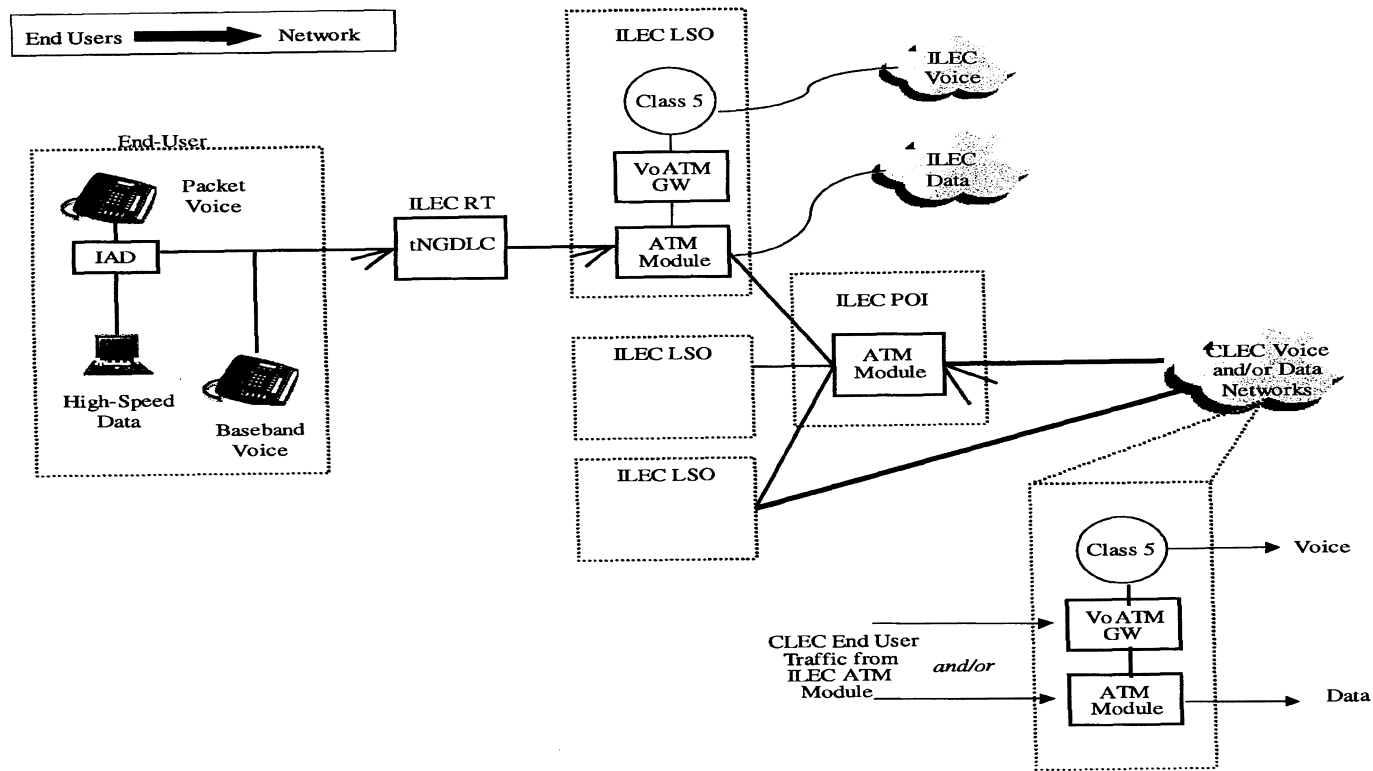
**Qwest's Comments on AT&T's Electronic Loop  
Provisioning**



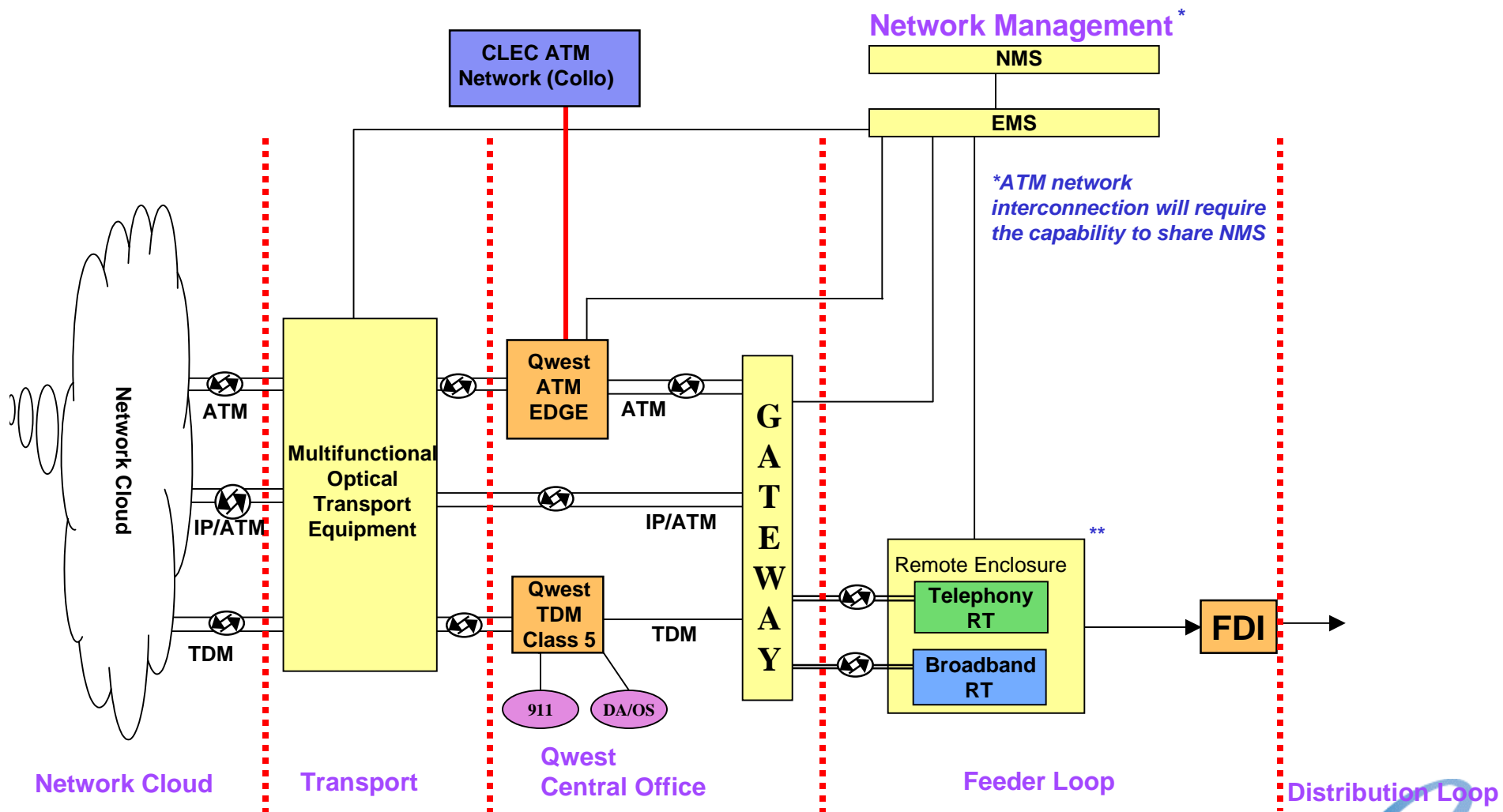
## AT&T's ELP Proposal is a Trojan Horse

- ❑ **Electronic Loop Provisioning is proposed as a solution to a non-existent problem (Hot-Cuts).**
- ❑ **Instead, ELP will give CLECs access to Advanced Services that would otherwise not be available under current rules.**

# GENERAL ELP NETWORK ARCHITECTURE



# The Full NGDLC Architecture



**\*\*NGDLC deployment would require physical separation of shelf and fiber transport for appropriate affiliate separation.**

**NOTE: Gateway is a functional description only for equipment that includes multi-protocol conversion**

# Summary of AT&T's Proposed ELP Architecture

## ❑ **AT&T's Proposed ELP Architecture Does Not:**

- **Identify the demand for a near 100% loop plant replacement**
- **Consider requirements necessary to facilitate multi-provider interconnection**
- **Account for Common Channel Signaling vendor interoperability**
- **Address the provisioning of 911/E911 and PSAP services**
- **Address the provisioning of DA/OS services**
- **Address a method of Quality of Service (QoS) verification**

# Summary of AT&T's Proposed ELP Architecture (continued)

## ❑ AT&T's Proposed ELP Architecture also:

- Limits LEC architecture
- Stifles evolution
- Requires replacement of functioning infrastructure
- Proposes that ELP is analogous to the FGD (Equal Access) implementation, which minimizes the ELP technology change out

# ELP Technical Limitations

## ❏ **Electronic Loop Provisioning (ELP)**

- **ELP requires Voice over Asynchronous Transfer Mode (VoATM) packet architecture that does not currently exist in Qwest's network.**
  - In order to provide ELP functionality and increase capacity, Qwest would have to extensively augment its existing network
    - Qwest's existing ATM switch technology does not have the capacity or capability to support ELP.
    - Qwest would be required to deploy a new ATM infrastructure in every central office.

## **ELP Technical Limitations** **(continued)**

### **❑ Electronic Loop Provisioning (ELP) (continued)**

- ELP requires an ATM packet protocol that is fundamentally different from Qwest's circuit based Time Division Multiplexing (TDM) network**
  - Qwest's existing voice DLC platform is circuit based TDM, while ELP is packet based.**
  - Qwest would be required to replace all existing circuit based TDM DLC equipment with an optical based ATM infrastructure that is ELP capable.**

## ELP Technical Limitations (continued)

### ❏ **ATM to ATM Interconnection**

- **An ELP architecture would require an ATM Inter-Networking Interface (A-INI) protocol; this type of protocol does not exist in Qwest's network today**
  - A-INI is an ATM protocol that allows multiple ATM networks to interconnect.
  - The existing Qwest User to Network Interface (UNI) does not provide for ELP functionality.
- **A-INI is required to provide a firewall between networks**
  - Qwest's UNI interface does not provide the necessary firewall to interconnect multiple interconnecting ATM networks.



## ELP Technical Limitations (continued)

### ❑ **ATM to ATM interconnection (continued)**

- **A-INI has not been fully developed or implemented by industry vendors**
  - Vendors of telecom equipment would be required to develop and implement A-INI.
- **ELP requires A-INI VoATM interconnection for the exchange of local traffic**
  - Minutes-of-use billing has only been developed for TDM networks.
  - ELP would require vendors to develop the ability to bill ATM interconnection minutes of use.

## ELP Technical Limitations (continued)

### □ Gateway Architecture

- Telecom vendors would be required to develop gateways for multi-provider access
  - Qwest's existing circuit based TDM technology allows interconnection for multiple carriers
  - Qwest has not deployed multi-protocol gateways that support ELP

## ELP Technical Limitations (continued)

### ❑ **Element Management Systems (EMS) and Network Management Systems (NMS)**

- **EMS and NMS have not been fully tested or deployed for multi-carrier access and interoperable environments**
  - Partitionable EMS would enable CLEC access to features, functions and capabilities
    - Vendors of telecom equipment and software would have to develop a proven partitionable EMS
  - Non-partitioned EMS systems adversely impact all users
    - Over provisioning of ATM network capacity will reduce interconnected carriers capability to provide service
    - Interconnecting carriers' alarm reporting could potentially flood a multi-provider ATM network



## **ELP Technical Limitations** **(continued)**

- ❑ Element Management Systems (EMS) and Network Management Systems (NMS) (continued)**
  - ELP would require VoATM Quality of Service (QoS) standards**
  - QoS standards have been established for the circuit based TDM network, but not for VoATM**

# ELP Technical Limitations (continued)

## ❑ Common Channel Signaling

- **ELP requires Bearer Independent Call Control (BICC) Protocol to establish virtual voice paths through the ATM network**
  - BICC Protocol has not been proven to be vendor interoperable in Qwest's network
  - Lab testing would have to prove vendor interoperability
  - Lab testing of vendor interoperability has not been completed

## ELP Technical Limitations (continued)

### ❑ **911/E911 and Public Safety Answering Point (PSAP)**

- **Qwest associated emergency services network is circuit based TDM, not packet based**
  - Currently PSAPs have not deployed packet based 911/E911 networks

### ❑ **Directory Assistance/Operator Service (DA/OS)**

- **DA/OS networks are circuit based TDM, not packet based**
  - If ELP supports DA/OS, all DA/OS networks would need to be packet capable
    - Currently, OS/DA providers have not deployed packet based DA/OS networks



## Impact Summary

- ❑ **AT&T is searching the ILEC ATM network for additional network features beyond the FCC's requirements, expecting to create services based on network features that ILECs have not deployed or do not use.**

## Impact Summary (continued)

- ❑ **ELP would require Qwest to provide unfettered access to UPS even where the FCC's four conditions have not been met**
- ❑ **AT&T's proposal for ELP and unconditional access to Qwest's network would permit AT&T to reassign its financial risk to Qwest**
- ❑ **AT&T's proposal creates an opportunity for CLECs to directly access NGDLC through virtual connections, which provides slamming opportunities that would impact customer choice**



## **Impact Summary** **(continued)**

- ❑ In order for Qwest to provide ELP, as proposed by AT&T, Qwest would be required to make significant changes to its existing network; this type of sweeping technology change would require billions of new capital investment**
- ❑ AT&T's arguments about GR-303 are largely irrelevant to the cost of deploying ELP**
  - Only about 18% of Qwest's Central Offices are currently equipped with GR-303 capability**
  - Only about 2% of Qwest's access lines are served by GR-303 DLC**

## **Impact Summary** **(continued)**

- ❑ ELP would require Qwest to place new A-INI capable ATM switches in every central office in its region**
  - Currently, Qwest has 146 ATMs deployed in 12% of its central offices**
  - Qwest's existing ATM technology does not have the capacity to support a robust ELP functionality**
- ❑ Qwest's currently deployed ATM interfaces do not support ELP**
  - All existing ATM interfaces would require A-INI, rather than the UNI interface that Qwest currently has in place**
  - Additional hardware would be required to upgrade Qwest's existing ATM network to be A-INI capable**



## **Impact Summary** **(continued)**

- ❏ The Feature Group D (FGD) transition did not demand the degree of global infrastructure replacement, and was based on exiting, prevalent capabilities**
  - The FGD (Equal Access), MFJ driven transition, adjusted the in-place architecture; it was essentially software based**
  - It did not demand technology replacement**
  - In fact, it was not nearly as equipment focused as the ELP thought**
  - Some new signaling enhancements were needed for exiting switches for FGD (Equal Access), not global infrastructure replacement**

# FGD (Equal Access) vs ELP

## High Level Comparison

### ❏ Feature Group D

- Existing Switching architecture left in place
  - OSS change was required
- Billing System architecture left in place
  - Enhancements required
- Software development lengthened process completion (biggest obstacle)

### ❏ ELP

- All new ATM infrastructure in every central office
- Replace all existing circuit based TDM DLC equipment
- With an optical based ATM infrastructure
- That is ELP capable
- An ELP architecture would require an A-INI protocol; this type of protocol does not exist in Qwest's network today

## Conclusion

- ❑ **AT&T (by recommending ELP) is trying to solve a hot-cut problem that does not exist and has a hidden agenda to require ILEC's to replace their functioning infrastructure with a next generation network**
  - **Qwest's current hot-cut performance is meeting or exceeding current performance standards**
    - In particular, in each month since July of 2001, Qwest has performed at least 98% of its analog loop hot-cuts on time and at least 96% of its digital loop hot-cuts on time

## Conclusion (continued)

### ❑ Qwest's current hot-cut performance (continued)

- Furthermore, as demonstrated in the *UNE Fact Report*, hot-cuts are now routinely completed on-time without significant disruptions more than 98% of the time.<sup>1</sup>
- Because they cannot credibly dispute the overwhelming evidence of the ready availability of switching from sources other than ILECs, AT&T falls back to the argument that “hot cuts” pose operational impediments sufficient to satisfy the impair standard. But AT&T ignores the evidence that hot cut performance has improved considerably in the more than two years since the *UNE Remand Order* to a level foreclosing any argument that hot cuts pose an operational or other barrier to competition through use of UNE loops.

<sup>1</sup> *UNE Fact Report at II - 16 to II - 17, App. H*

## Final Thoughts

- ❑ It seems hard to imagine that the FCC or any state commission could take the ELP proposal seriously when one of their charters is to keep dial tone costs to customers as reasonable as possible. If it is as cost-effective as AT&T promotes, any army of CLECs would be rushing in to place NGDLCs at the FDI and cut the ILEC out of a major segment of the business, leveraging off unbundled subloops
- ❑ If this thrust were successful, an architecture du jour is mandated to the service provider
- ❑ Is this something that AT&T is offering on their own ATM network?

# Acronyms

- **A-INI:** ATM INTERNETWORK INTERFACE
- **ATM:** ASYNCHRONOUS TRANSFER MODE
- **BICC:** BEARER INDEPENDENT CALL CONTROL
- **CLEC:** COMPETITIVE LOCAL EXCHANGE CARRIER
- **CO:** CENTRAL OFFICE
- **DA:** DIRECTORY ASSISTANCE
- **DSLAM :** DIGITAL SUBSCRIBER LINE ACCESS MULTIPLEXER
- **ELP:** ELECTRONIC LOOP PROVISIONING
- **EMS:** ELEMENT MANAGEMENT SYSTEM
- **FCC:** FEDERAL COMMUNICATIONS COMMISSION
- **FDI:** FEEDER/DISTRIBUTION INTERFACE
- **FGD:** FEATURE GROUP D
- **IDLC:** INTEGRATED DIGITAL LOOP CARRIER
- **ILEC:** INCUMBENT LOCAL EXCHANGE CARRIER
- **IP:** INTERNET PROTOCOL
- **NE:** NETWORK ELEMENT
- **NGDLC:** NEXT GENERATION DIGITAL LOOP CARRIER
- **NMS:** NETWORK MANAGEMENT SYSTEM
- **OS:** OPERATOR SERVICES
- **PSAP:** PUBLIC SAFETY ANSWERING POINT
- **QoS:** QUALITY OF SERVICE
- **RT:** REMOTE TERMINAL
- **TDM:** TIME DIVISION MULTIPLEXING
- **UNI:** USER NETWORK INTERFACE
- **UPS:** UNBUNDLED PACKET SWITCHING

